Arthritis Deformans of the Larynx.

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The propriety of the introduction of this title into laryngeal nomenclature must depend upon the final disposition by pathologists of the same question relative to arthritis deformans in general, the disease which is also termed rheumatoid arthritis. If it be conceded, as is now claimed by most writers on the subject, that arthritis deformans is quite independent of rheumatism on the one hand and of gout on the other, then its laryngeal complication, which I believe I am about to describe for the first time, will be entitled to independent consideration. If, however, the disease be eventually relegated to the class of rheumatic affections, then it is hoped only that this contribution may prove of interest as descriptive of a rare laryngeal phase of the latter disease.

Concerning the individuality of arthritis deformans, Dr. Leonard Weber, in the *Reference Handbook of the Medical Sciences*, says: "It is distinguished from gout and rheu-

* Read before the American Laryngological Association at its fifteenth annual congress.

matism by the peculiar morbid changes it produces in the articular tissues and by the absence of any known abnormal state of the blood." "The name 'rheumatic gout,' which has been given to it, is evidently a misnomer, as it is neither gout nor rheumatism."

From careful studies of the morbid anatomy of arthritis deformans, R. Volkmann, cited by Weber,* recognizes the rapid proliferation of the articular cartilaginous elements, particularly on the free surface of the cartilage, as the essential factor of the disease, together with subsequent absorption of the cartilages. Garrod † failed to discover any pathognomonic changes in the blood, and Weber ‡ states that it is a fact that uric acid has not been found in the blood, and that analysis of the urine has failed to show unusual increase of uric acid or urates. Moreover, deposits of urate of sodium, which are constant in gout, are not found in arthritis deformans, and the changes which are found are quite different also from those of simple articular rheumatism. Inasmuch as Charcot and others have demonstrated an ætiological relationship to exist between certain spinal diseases and other peculiar morbid states of the joints, a trophoneurotic origin of arthritis deformans has been suggested.

Substantially the same views relative to the independence of this disease are expressed by Senator in von Ziemssen's *Cyclopædia*, and by Howard in Pepper's *System of Medicine.*

In February, 1893, I was requested by Dr. E. J. Doering, of Chicago, to see in consultation Mrs. S., a widow, about fifty-eight years of age, in affluent circumstances, but of plain habits and mode of life. She had been suffering for some weeks from laryngeal dyspnœa, which was now so severe as to occasion marked inspiratory stridor and a noticeable expiratory noise.

* *Loc. cit.* † Cited by Weber. *Loc. cit.* ‡ *Loc. cit.*

The laryngeal image, at the first trial, was only fairly satisfactory, but gave one the impression of acute laryngitis of moderate intensity only and without adequate explanation of the dyspnœa, for there was no œdema and the ventricular bands were so little swollen that on phonation of the vowel "e" the vocal cords could be seen approximated in the median line. On cessation of this sound the epiglottis would fall so quickly that the cords could not be viewed during the stage of abduction. The arytænoid eminences appeared swollen and their movements restricted, but they were not grossly distorted. After a few days' training a much better view of the larynx was obtainable, and I then observed that abduction of the vocal cords could not take place, their separation at best, whether during ordinary quietude or on forced inspiration, being so slight that but the smallest possible space between them was provided for respiration. Another conspicuous feature of the view was a peculiar thickening or swelling of the posterior ends of the vocal bands, sufficiently marked to cause each posterior end to bulge perceptibly downward as well as upward, and to project into the rima glottidis beyond the line of the purely fibrous part of the cord, encroaching upon its fellow of the opposite side. The part of the vocal cord thus affected is commonly designated the cartilaginous portion, because of the projection into it, as it were, of the vocal process of the arytænoid cartilage, which gives attachment to the fibers of the cord proper, or the presence in its substance of this vocal process in the form of a sesamoid cartilage, detached from the body of the arytænoid, as described by Solis-Cohen, and because, further, of the cartilaginous film imbedded therein in female subjects, as described by Seiler. The position of the vocal process formed a distinct "line of demarcation" between this curiously thickened posterior end of the vocal cord and its main portion or purely fibrous part, the latter being congested and relaxed, but not enlarged or thickened. The appearance was suggestive of inflammatory infiltration in the deep substance of this part of the cord, and, in connection with other features of the case, it is a reasonable inference that the curious enlargement at this point was due to proliferative changes in the cartilaginous elements, especially as

the arytænoid cartilage itself was likewise involved. I have mentioned that the arytænoid eminences appeared more than usually prominent, but not unequally so, and that their motion was restricted in correspondence with the want of the power of abduction of the vocal bands. It seemed reasonably certain that this inability of the vocal cords to separate was due to ankylosis of the crico-arytænoid articulations. A similar aspect could be produced only by paralysis of the posterior crico-arytænoid muscles in conjunction with acute laryngitis, but "posticus paralysis" would not be accompanied by the peculiar condition of the posterior ends of the vocal cords above described, or by enlargement of the arytænoid eminences. The stridor of "posticus paralysis," furthermore, is inspiratory only, the cords on expiration presenting upward like a dome with an elliptical space between them. Moreover, neither the history nor the subsequent course of the case would justify a diagnosis of abductor paralysis. Daily opportunities were afforded for laryngoscopic observation, and during the following two weeks the condition remained practically unchanged. The dyspnœa gradually exhausted her strength and a time was appointed for the operation of tracheotomy, but just then respiration became somewhat easier and it continued to improve until, at the end of six weeks, she breathed noiselessly and, during quietude, without conscious effort. The aspect of the larynx, however, had changed but slightly. The congestion was less marked, the vocal cords appeared paler and thinner, and the space between them on inspiratory efforts at abduction was somewhat wider, with a corresponding slight increase of motion of the arytænoids, but the cords could not be estimated to separate, even now, more than one sixth part of the natural distance, and the arytænoid eminences and the posterior ends of the vocal cords presented the same appearances. Her larynx was again free of viscid mucus, which had intensified the dyspnœa, and the cough had subsided so that the patient expressed herself as feeling about as well as usual. True labored respiration was at once excited by any considerable exertion, but to more or less of this she had been accustomed for years.

Evidently this attack had not been one alone of ordinary

laryngitis, but rather of an acute exacerbation of a chronic laryngeal arthritis, an inference which is further justified both by the history and the presence of a general arthritis deformans. The patient previously had twice suffered, at intervals of two or three years, from similar attacks, the second seizure having been equally severe, but of shorter duration. She chanced at that time to be traveling in Germany, and was under the treatment of a competent laryngologist, who subsequently told her that the opening of the larynx was unusually small, and that the laryngeal disease was connected with her so called rheumatic gout. This general arthritis has affected the patient progressively for from ten to fifteen years or more, having commenced so insidiously as to have attracted but little serious attention during its earlier years. It closely corresponds to the typical form of polyarticular arthritis deformans, as described by Weber * and others.

The joints of the right and left sides are affected symmetrically throughout, a feature which is manifested likewise in the two crico-arytænoid articulations of the larynx. The hands are characteristically distorted, and distorted wonderfully alike, displaying prominently the enlarged and nodular condition of the ends of the phalanges and the heads of the metacarpal bones. The fingers are no longer articulated in a straight line with the metacarpal bones, but are all partially dislocated outward in the direction of the little finger. The joints are stiff, but not immovable, and she has succeeded in counteracting the usual tendency to flexion of the fingers by regularly maintaining them extended against the bedding at night. The thumbs are dislocated backward. Her wrists exhibit similar nodosities and are stiffened. The elbows and shoulders are less affected, the disease having manifested itself first and most severely in the extremities, and especially in the hands. Her feet and ankles are similarly affected, but not conspicuously so. The left knee is involved to such an extent that in sitting she must maintain it in a position of extension. The hip joints as yet seem but little affected.

The patient has never had a typical paroxysm of gout or

* *Loc. cit.*

suffered from acute articular rheumatism; in fact, she states that her disease has not at any time been accompanied by pain, but merely at certain periods by a sense of discomfort which approaches pain only on forced movement of the affected joints. Nor has she experienced any pain in the region of the larynx, a point which seems further to distinguish this laryngeal complication from rheumatism, which, when affecting the larynx or pharynx, has quite invariably been described as accompanied by pain, often severe and lancinating in character. All treatment in the past and during the recent seizure formulated on the supposition that her disease might be either gout or rheumatism has uniformly and utterly failed.

Treatment directed especially to the chronic arthritis deformans of the larynx has been attempted only at times of acute exacerbation of the disease, and during the last attack it was directed chiefly toward relief of the dyspnœa. She could inhale fine sprays into the larynx fairly well if the tongue were held out and the head thrown backward. A preliminary spray of a two-per cent. solution of cocaine would afford prompt, albeit temporary, mitigation of the dyspnœa, doubtless by contracting the congested vessels of the mucosa, and would also, by benumbing the parts slightly, permit of a more thorough application of subsequent sprays. An alkaline and antiseptic spray, containing sodium bicarbonate, sodium borate, menthol, oil of eucalyptus, oil of gaultheria, glycerin, and water, served to augment and prolong the good effects of the cocaine and to cleanse the larynx of viscid mucus. Later, sulphocarbolate of zinc, ten grains to the ounce of water, was employed with benefit. As a final inhalant I would use the following soothing petroleum combination, which in this case, as in many others of acute inflammation of the larynx, trachea, and bronchi, I have used with much comfort and benefit to the patient:

℞ Ol. pini canadensis..... ♏v;
Ol. gaultheriæ..... ♏ij;
Ol. eucalypti..... ♏ij;
Menthol..... gr. j;
"Benzoinol"..... ʒij;
"Vaselin oil".....q. s. ad ℥j.

M. Sig.: To be used with a double-bulb atomizer.

The persistent use of these remedies simply served to keep the larynx free of mucus and the congestion at a minimum, but without them I am convinced that the operation of tracheotomy could not have been avoided.

After their use, especially at night, when the dyspnœa seemed most urgent, the exhausted patient would obtain sufficient relief to permit of much-needed rest and slumber.

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